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STATE OF CALIFORNIA
DEPARTMENT OF FISH AND GAME

PESTICIDE LABORATORY REPORT

1701 Nimbus Road, Suite F
Rancho Cordova, California 95670

Lab No: P-1926B Date Received: December 18, 1997

E.P. No. D9800168 Sample: Coyote

To: Mr. Eric York Report Date: February 20, 1998
U.S. Dept. Of Interior
National Park Service
Santa Monica Mountains National. Rec. Area
30401 Agoura Rd., Ste. 100
Agoura Hills, CA 91301

Remarks

As part of a study of large carnivores, the National Park Service has been radio collaring coyotes, *Canis latrans*, bobcats, *Lynx rufus*, and gray fox, *Urocyon cinereoargenteus*, in the Santa Monica Mountains National Recreation Area in Los Angeles and Ventura Counties. The radio collars are equipped with mortality indicators which allow for quick retrieval of a dead animal. Telemetry data from the study indicates that the home ranges of many of the animals overlap both urban development and range/wildlands.

Backgronnd

The carcass of an adult female bobcat (#B30) was recovered from a stream bed near the golf course near Kanan and Lindero Canyon Roads in Westlake, Ventura County on December 13, 1997. The mortality timer on the radio collar indicated the animal had been dead for approximately nine days. The bobcat was initially trapped on October 9, 1997 in the China Flat area of Palo Camado Canyon. It was fitted with a radio transmitter collar at the time of capture. Telemetry data indicated that the bobcat's home range encompassed both urban and native land areas. Following recovery, the carcass was sent to the Department of Fish and Game Wildlife Investigations Laboratory and the Pesticide Investigations Unit for necropsy and tissue analysis to try and determine the cause of the loss.

RESULTS OF EXAMINATION

There was no external evidence of physical trauma. No physical signs of disease were observed. The carcass was skinned to look for evidence of bullet holes or other puncture wounds. Two small holes with early instar maggots were observed; one on the left side of the body immediately in front of the hind leg and the second on the right side of the thorax. There were no internal signs of injury, such as hematomas or other tissue damage to indicate a wound from another predator or a gunshot. There were little or no body fat reserves present subcutaneously or in the abdominal cavity. There was some degree of autolysis to the organs. Dark blood colored free liquids were present in the thoracic and abdominal cavities. The organs appeared swollen and oozed blood when cut. The kidneys appeared particularly engorged. The stomach contents were very dark red-brown in color with mats of animal hair. Liver tissue, blood and stomach contents were collected for analysis of anticoagulant residues. The kidneys were also collected to test for possible exposure to ethylene glycol.

Analysis of the kidney was negative for the presence of ethylene glycol. The blood and stomach content samples were negative for the presence of anticoagulants. Brodifacoum was identified at 0.049 parts per million (ppm) in the liver tissue.

Conclusion

Brodifacoum is a "second generation" anticoagulant generally only requiring a single exposure to produce a toxic effect. The LD50 for commensal rodents is approximately 0.27 ppm. LD50 values for dogs range from 0.25 ppm to 1 ppm. Brodifacoum may remain in the body of a canid for up to 180 days following ingestion (Miller 1984). Eason et al. (1996) reported detectable residues of brodifacoum in liver tissue of experimentally dosed Australian brushtail possums, *Trichosurus vulpecula*, up to 254 days after a single exposure to brodifacoum at 0.1 mg/kg. During the period it is present in the body, the brodifacoum can continue to interfere with the production of clotting factors in the animal's blood and can result in potentially lethal hemorrhage. The susceptibility of the individual animal may depend on several factors including age, and overall state of health. Based on the detection of brodifacoum in the liver, and the presence of free blood throughout the body cavities and organs of the animal, it is highly probable that this loss was due to exposure to the rodenticide brodifacoum. Based on the circumstances of the case I cannot determine if this exposure is primary or secondary in nature.

Chemical analyses performed by the University of California Davis, Veterinary Diagnostic Laboratory.

PESTICIDE INVESTIGATIONS UNIT
OFFICE OF SPILL PREVENTION AND RESPONSE

By _____
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Approved _____
Brian Finlayson, Chief
Pesticide Investigations Unit

Literature Cited:

Eason, C.T., G.R. Wright, L. Meikle, and P. Elder. 1996. The Persistence and Secondary Poisoning Risks of Sodium Monofluoroacetate (1080), Brodifacoum, and Cholicalciferol in Possums. Proceedings: Vertebrate Pest Conference, Rohnert Park CA, 5-7 March, Vol 17. pp:54-58

Miller, J.G. 1984. The Treatment of Accidental Anticoagulant Toxicity in the Canine. Proceedings: Vertebrate Pest Conference, Sacramento CA, 6-8 March, Vol 11. pp:99-100

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